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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,491	07/24/2003	James E. Jaussi	10559-554002 / P12574C	2001
20985	7590	10/19/2004	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			ENGLUND, TERRY LEE	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,491

Applicant(s)

JAUSSI ET AL.

Examiner

Terry L Englund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

The declaration is defective. A new declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The declaration is defective because it refers to parent application 10/041,677 filed on Jan 7, 2002, instead of the present application. The declaration submitted with the present application should have indicated the specification “is attached hereto”, and application 10/041,677 should have been referred to in the Title 35, United States Code, § 120 section.

Drawings

The drawings are objected to because several input lines in Fig. 3 either blend in with other lines or are missing a section of the line. The +V_n input line to 322 blends in with part of the line around first stage 348; a portion of the -V_n input line to 324 and 328 blends in with the common line between stages 346 and 348; +V_{N-1} input line to 330 blends in with part of the line around second stage 350; and a section of input line -V_{N-1} to 336 is missing (along with the right most line of the line believed to be completely surrounding 350). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and

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appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are also objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Vout+ and Vout- are not labeled as such in the figures (e.g. see Fig. 1 and page 6, lines 6-7 of paragraph 0017; Fig. 2 and page 9, lines 8-9 of paragraph 0024; and Fig. 4 and page 14, line 8 of paragraph 0038). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive because it identifies a “HIGH SPEED MULTPLIER”, wherein the claims recite a filter circuit or filtering method. Therefore, a new title is required that is more clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following informalities:

The continuation information, with respect to application 10/041,677, should be added to page 1 of the specification. When this change is made, the information should also indicate that application was issued as U.S. Patent 6,624,688 on Sep 23, 2003. Page 8, line 5 of paragraph 0022; page 11, line 8 of paragraph 0030; and page 12, line 5 of paragraph 0032 should all have the first occurrence of “is” deleted to improve word flow. Page 12, line 5 of paragraph 31; and line 9 of paragraph 0032, should both have “340” replaced with --348--. Page 14, line 8 of paragraph 0038 should have “230” and “232” replaced with --416-- and --418--, respectively to correctly identify the nodes in filter 400. Appropriate corrections are required.

Claim Objections

Claims 1-13, 16, 19-23, and 25-28 are objected to because of the following informalities: It is suggested “the second input” on line 5 of claim 1 be changed to --the second differential input-- to provide consistent labeling throughout the claim. It is suggested --input-- be added after “differential” on line 2 of claim 16 for consistent labeling. Line 4 of both claims 19 and 21 should have “pairs” preceded by --input-- for consistent labeling throughout the claims. Claim 22, line 1 “method circuit” should be --method-- to minimize possible confusion. Similarly, “pairs” on line 2 of claim 23 should be preceded by --input-- for consistent labeling. Also for consistent labeling, it is suggested --differential-- be added prior to “input” on line 13 of claim

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25; --circuit-- be added after “filter” on line 2 of claim 28; and --transistor-- be added prior to “pairs” on each of lines 4, 5, and 8 of claim 28. Dependent claims carry over any objection from any claim(s) upon which they depend. For example, claims 2-13 carry over the objection from claim 1. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. It is not clear if claim 14 recites all its intended limitations because the claim lacks the term --and-- that would help identify the last limitation within the claim is being recited. Also, as described later, numerous limitations within claim 14 lack an antecedent basis, indicating other limitations were possibly left out of the claim. It is not understood if claim 23 was meant to recite “n-channel” or --p-channel-- MOSFET transistors since the applications’ own figures only show p-channel transistors, and there doesn’t appear to be any disclosure citing n-channel transistors in the differential pairs. [It is also noted that similar claim 10 recites “p-channel MOSFET transistors.”] It is not clear in claim 24 which of the first and second differential input pairs of claim 14 is being referred to by claim 24’s “a differential input pair” (line 3). It is not understood how “a third differential signal” (and “third signal”) within claim 24 (lines 2 and 4) relate to the first/second inputs, and the filtered signal, recited within claim 14. Also, how does “biasing a differential input pair” on lines 3-4 of claim 24 relate to the biasing of the first/second differential input pairs recited in claim 14 (line 4)?

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Each of claims 2, 9, 11, and 13 recites the limitation "the output nodes" in lines 1-2.

There is insufficient antecedent basis for this limitation in the claims. Were these "nodes" meant to relate to the first/second output terminals recited within claim 1, or are the nodes and terminals different from one another?

Similar to claims 2, 9, 11, and 13 above, claim 12 recites the limitations "the first output node" and "the second output node" in lines 5 and 6, respectively. There is insufficient antecedent basis for these limitations within the claim.

Claim 9 recites the limitation "The amplifier circuit" in line 1 with insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitations "the first and second differential input pairs" (line 4); "the gain (line 7); "the first and second output nodes" (line 9); "the transistors" (line 11); and "the inverted inputs and non-inverted inputs" (lines 11-12). There is insufficient antecedent basis for these limitations in the claim. Therefore, it is not known if claim 14 cites all of its intended limitations.

Claim 17 recites the limitation "the tail currents" in line 2 with insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the widths of the channels of the transistors" in lines 2-3. Besides having insufficient antecedent basis for this limitation in the claim, the limitation implies that the transistors have channels. However, claim 14 does not indicate if the transistors are bipolar or MOSFETs. Therefore, if the transistors of claim 14 can be bipolar transistors, how can they have channel widths, which one of ordinary skill in the art relates to MOSFETs?

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Similar to claim 18 above, claim 19 recites the limitation "the channel widths in at least one transistor pair" in lines 4-5 with insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the first signal" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitations "the tail currents" and "the tail current" in lines 2 and 4, respectively with insufficient antecedent basis for these limitations in the claim.

Claim 24 recites the limitation "the first signal" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitation "the channel widths" in lines 4-5 with insufficient antecedent basis for this limitation in the claim. Also, this limitation also implies the transistors are MOSFETs, wherein it is believed they could also be bipolar transistors within the filter circuit recited in claim 25.

Claims 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are how the sample-and hold circuit, and its samples and holds values, relate to the filter circuit and its various inputs. Claims 26-28 carry over the rejection from claim 25.

Dependent claims carry over any rejection(s) from any claim(s) upon which they depend.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.

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Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,624,688 B2, wherein the present application is a continuation of the patent's application 10/041,677. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are close variations from one another (e.g. the basic differences relate directly to objections, and/or rejections under 35 U.S.C. 112, of the present application's claims). Some examples of their variations/relationships are as follows: 1) independent claim 14 of the present application corresponds to independent claim 1 of the patent; 2) the application's dependent claim 5 corresponds to the patent's independent claim 16; 3) the application's dependent claim 6 corresponds to the patent's independent claim 20; 4) the application's dependent claim 10 corresponds to the patent's independent claim 25; and 5) part of the application's dependent claim 12 corresponds to patent's independent claim 27.

[NOTE: When this action was written, the examiner was not aware of any preliminary type amendments that changed the claims. Therefore, claims 1-28 of the present application match (i.e. are identical) the original set of claims submitted with parent application 10/041,677.]

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Crosby. Fig. 3 of Crosby shows a circuit comprising first differential transistor pair 44 biased by a first differential input (provided by delay 50); a second differential transistor pair 26 biased by a second differential input SAMP1/SAMP2; at least one current source 12,22 for providing tail currents to the differential pairs; transistors 32 and 46 share what can be deemed a first output terminal OUT2; and transistors 30 and 48 share what can be deemed a second output terminal OUT1. Second input SAMP1/SAMP2 is received prior to the first differential input (i.e. the output of delay 50). Deeming those signals the present (e.g. delayed) and previous (e.g. original) inputs, claim 1 is anticipated. [The input received by 30 is inverted with respect to the signal received by 32; and the input received by 46 is inverted with respect to the signal received by 48.] Although not shown in Fig. 1, related Fig. 4B shows output nodes 96/98 coupled to passive load resistors 138,140, and what can be deemed an amplifier 130,132. Therefore, the output terminals of first/second differential pairs 44/26 can be coupled to output nodes 96/98 and their respective loads, thus anticipating claim 2. Since the tail current through transistor 12 will be inversely proportional to the tail current through transistor 22 (due to the complementary signals +SIG and -SIG controlling those respective transistors), the tail currents of the first/second differential pairs are different from one another, anticipating claim 3. Deeming 12 and 22 a

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plurality of variably controlled current sources, claim 4 is anticipated. Due to the summing of the differential pair outputs, the voltage drops across resistors 102,138,140 (with respect to the output nodes shown in Fig. 4B), and transistors 130,132, differential signals +OUT/-OUT can be considered an amplified, offset, filtered signal. Therefore, claim 11 is anticipated. It is understood that output nodes OUT1/OUT2 would be connected to an input of at least another circuit element (e.g. 130,132 of Fig 4B), anticipating claim 13.

No claim is allowable.

Allowable Subject Matter

However, if a terminal disclaimer is submitted with respect to U.S. Patent 6,624,688 B2 and the Double Patenting rejections described above, then claims 5-8, and 10 are only objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is presently no motivation to modify or combine any prior art reference(s) to ensure the filter circuit includes: 1) the different channel widths as recited within claims 5 and 7; 2) the first/second offset-inducing differential pairs as recited within claim 6; and 3) the differential pair transistors are p-channel MOSFETs as recited within claim 10. Claims 7-8 depend on claim 6.

Also, claims 9, 12, and 14-28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims, where applicable. Claim 9 depends on objected claims 6-8. There is presently no motivation to modify or combine any prior art reference(s) to ensure the filter circuit, filtering method, or communications system

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includes: 1) the third differential pair as recited within claim 12; 2) the first and second differential inputs of the input pairs are weighted as recited within claim 14 (upon which claims 15-24 depend); and 3) the filter relates to the transmitter and sample-and-hold circuit as claim 25 apparently attempts to recite. Claims 26-28 depend on claim 25.

Prior Art

The other prior art references cited on the accompanying PTO-892 is deemed relevant to at least sections of the claimed invention. At first glance, Hasegawa's Fig. 2 shows a structure corresponding to the structural limitations recited within at least claim 1. For example, first differential transistor pair DA1 is biased by first differential input TVin1+,TVin1-; second differential transistor pair DA2 is biased by second differential input TVin2+,TVin2-; current sources C1,C2 provide the tail currents to their respective differential pair; transistors M1b,M2b, biased by inverted inputs TVin1-,TVin2-, have first output terminal OC+; transistors M1a,M2a, biased by non-inverted inputs TVin1+,TVin2+, have second output terminal OC-; and there is even a third differential pair OC coupled in parallel to the first/second differential pairs. However, input signal TVin1+,TVin1- is related to the actual output of the circuit (e.g. see Figs. 1, 6, and 7). Therefore, there is no clear showing or disclosure that the second input of Hasegawa is received prior to the first input, and that the transistors are biased by present and previous inputs as recited within the claims. For example, although TVin1+,TVin1- may be one type of a delayed version of TVin2+,TVin2-, it is not clear if the transistors actually receive one set of the inputs first. Similarly, the Casper reference shows a basic circuit within Fig. 1 that matches Fig. 1 of the present application. However, Casper is one of the co-inventors of the present application, and more importantly, that reference does not show or disclose one of the first and

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second inputs (e.g. Vin^a, Vin^b and Vin^c, Vin^d) being received prior to the other input as recited within each of independent claims 1, 14, and 25 of the present invention.

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (571) 272-1740.

The new central official fax number is (703) 872-9306.

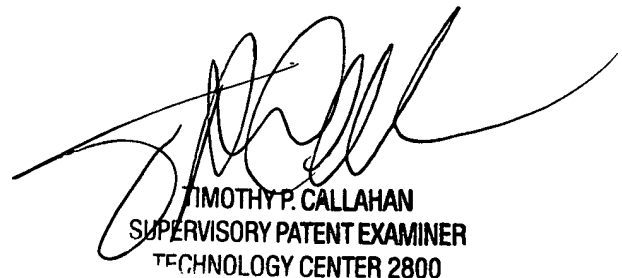
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terry L. Englund

6 October 2004



TIMOTHY P. CALLAHAN
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